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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,236	08/08/2001	Chaitan Khosla	300622000123	5249

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EXAMINER

NASHED, NASHAAT T

ART UNIT	PAPER NUMBER
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1652

DATE MAILED: 08/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/925,236

Applicant(s)

KHOSLA ET AL.

Examiner

Nashaat T. Nashed, Ph. D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 May 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 96-101 and 104-115 is/are pending in the application.
- 4a) Of the above claim(s) 104-115 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 96-101 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/2/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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The preliminary amendment filed August 8, 2001 has been entered. All original claims have been canceled, and new claims 96-115 have been entered.

The examiner regrets his failure of finding the amendment filed August 8, 2001, before mailing the restriction requirement February 24, 2004. In a telephonic interview, the new claims were subjected to the following restriction requirement.

- | | |
|-----------|--|
| Group I | Claims 96-103 directed to a method to prepare a cell containing a nucleic acid molecule, classified in class 435, subclass 440. |
| Group II | Claims 104-106 directed to a method to produce a functional polyketide synthase by culturing a host cell, classified in class 435, subclass 183. |
| Group III | Claims 107-1 15 directed to a recombinant method to produce a polyketide , classified in class 435, subclass 76. |

The inventions of Groups I-III are unrelated. The different inventions are independent methods having different steps and products.

Applicant's election without traverse of Group I in the reply filed on May 24, 2004 is acknowledged. In addition, Applicants requested the cancellation of claims 102 and 103.

Applicants are reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 C.F.R. § 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a diligently-filed petition under 37 C.F.R. § 1.48(b) and by the fee required under 37 C.F.R. § 1.17(h).

Claims 96-101 are under consideration.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re*

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Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 96-101 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,399,382 ('382). Although the conflicting claims are not identical, they are not patentably distinct from each other. Independent claims 1 of the '382 and claim 96 of the instant application patent are nearly identical. Claim 1 of '382 patent is limited to modules from 6-deoxyerythronolide B gene cluster, whereas claim 96 of the instant application reads on any module from any gene cluster.

Claims 96-101 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 5-12 and 15-21 of U.S. Patent No. 5,672,491 ('491). Although the conflicting claims are not identical, they are not patentably distinct from each other. Claims 5-12, and 15-21 of the '491 patent are directed to a host cell and a vector comprising the nucleic acid described in claim 96 of the instant application and its dependent claims 97-101. One of ordinary skill in the art would have been motivated to make polyketide by recombinant method would have transformed a host cell with the vector of claim 15-19 of '491 patent to obtain the host cell of claims 15-12, 20 and 21 to use in a method to make polyketides. Thus, the claimed method in the instant application are obvious over the claimed vector of claims 15-19 of the '491 patent.

Claims 96-101 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 32-38 of U. Patent 6,022,731 ('731). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in '898 are drawn a recombinant plasmid comprising a nucleic acid encoding a module of PKS gene cluster and the instant claims are drawn to a method of preparing a host cell host cell comprising such a nucleic acid. Since polyketides are important class of chemical intermediate for the biosynthesis of antibiotics and anticancer agent, it would be obvious to one of ordinary skill in the art to express the

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plasmid of claims 32-38 of '431 to obtain the host cells of claims 96-101 and utilize the host cell in a method to make the PKS.

The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 96-101 are rejected under 35 U.S.C. § 112, first paragraph, as the disclosure is enabling only for claims limited to the host cell *Streptomyces coelicolor* transformed with nucleic acid from the 6-deoxyerythronolide B gene cluster. The specification does not enable any person skilled in the art to make and use the invention commensurate in scope with these claims. The claims are broader than the enablement provided by the disclosure with regard to the huge number of all possible host cells transformed with a nucleic acid from any gene cluster(s). Factors to be considered in determining whether undue experimentation is required are summarized *In re Wands* [858 F.2d 731, 8 USPQ 2d 1400 (Fed. Cir. 1988)]. The Wands factors are: (a) the quantity of experimentation necessary, (b) the amount of direction or guidance presented, (c) the presence or absence of working example, (d) the nature of the invention, (e) the state of the prior art, (f) the relative skill of those in the art, (g) the predictability or unpredictability of the art, and (h) the breadth of the claim.

The nature and breadth of the claimed invention encompasses any cell transformed with at least one modular polyketide synthase from any natural source or man-made. The specification provides guidance and examples in the form of an assay to delete or disable the native *act* gene of *S. coelicolor* and use it as a host cell for nucleic acid molecules encoding modular polyketide synthase as well as other enzymatic activities that modify the biosynthetic polyketides, see examples 1-5. While molecular biological techniques and genetic manipulation to make the claimed host cell are known in the prior art and the skill of the artisan are well developed, knowledge regarding the nucleic acid encoding any gene cluster, and the tolerance of all potential host cells to gene encoding modular polyketide synthase as well as to the product polyketides. The exemplified host cell in the specification is *S. coelicolor*, which has its own native polyketide synthase and is a natural producer of polyketides. Thus, searching for another host cell or nucleic acid sequence encoding a modular polyketide synthase with desired characteristics is well outside the realm of routine experimentation and predictability in the art of success is extremely low. The amount of experimentation to identify a polyketide gene cluster or a host cell for nucleic acid sequence encoding modular polyketide synthase other than *S. coelicolor*, even among cells

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known to produce polyketides, is enormous. Since routine experimentation in the art does not include screening vast numbers of genomic, or cDNA libraries constructed from large number of organism to identify polyketide gene clusters, delete the said gene cluster, or screen vast number of cells to host a nucleic acid sequence encoding modular poyketide synthase and use the host cell to produce polyketide where the expectation of obtaining the desired host cell, polyketide synthase, or the said polyketide is unpredictable, the Examiner finds that one skilled in the art would require additional guidance, such as information regarding the nucleic acid sequence encoding the polyketide gene cluster, modules and enzymes that modify polyketides from any species, the tolerance of various cells to polyketide gene clusters and polyketides, and the nucleic acid sequence encoding native gene cluster for polyketides, if such a gene cluster exists in the host cell. Without such guidance, the experimentation left to those skilled in the art is undue.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nashaat T. Nashed, Ph. D. whose telephone number is 571-272-0934. The examiner can normally be reached on MTTF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapura Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Nashaat T. Nashed, Ph. D.
Primary Examiner
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